

In the Claims

The listing of claims will replace all prior versions and listings of claims in the application.

1. (original) An electromagnet for use in a brake, comprising:
a polymer impregnated powder metal core containing a coil, and an injection molding material attached to said powder metal core, said powder metal having a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi, said injection molding material comprising a donor material having an elasticity greater than about 2 million psi that provides a hard protective wear resistant surface layer, a composite adhering coating layer, and an interim layer that has the ability to act in concert with shearing of said composite adhering coating.
2. (original) The electromagnet of claim 1, wherein said donor material comprises polyphenylene sulfide.
3. (previously presented) An electromagnet for use in a brake, comprising:
a polymer impregnated powder metal core containing a coil, and an injection molding material attached to said powder metal core, said powder metal having a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi, said injection molding material comprising a donor material having an elasticity greater than about 2 million psi that provides a hard protective wear resistant surface layer, a composite adhering coating layer, and an interim layer that has the ability to act in concert with shearing of said composite adhering coating;
wherein said donor material comprises polyethylenesulfide;
wherein further said injection molding material is comprised of 18-35% polyethylenesulfide, 5-30% Kyanite, 4-18% Graphite, 9-40% Barite, and 8-30% Glass filler, by total weight of the donor material.

4. (original) The electromagnet of claim 1, wherein said Young's modulus of elasticity of said powder metal is between about 17 million psi and about 21 million psi.
5. (original) The electromagnet of claim 4, wherein said Young's modulus of elasticity of said powder metal is about 19 million psi.
6. (original) The electromagnet of claim 1, wherein said polymer impregnated powder metal core comprises a stamped annealed low carbon iron.
7. (original) The electromagnet of claim 6, wherein said stamped annealed low carbon iron is Hoerganaes Anchor steel 1000 series.
8. (original) The electromagnet of claim 1, wherein said polymer impregnated powder metal core is green pressed at about 30 tons per square inch and sintered at a temperature of about 2050 degrees Fahrenheit.
9. (original) An electromagnet assembly for a brake, comprising:
a powder metal housing and core, a bobbin, a copper coil, and a friction material comprising a polymeric donor material, where the donor material comprises 18% to 35% of a polymer from the group consisting of polyphenylene sulfide, epoxy and phenolic, 5% to 30% Kyanite, 4% to 18% graphite, 9% to 45% of a sulfide or sulfate compound, and 8% to 30% glass fibers, by the total weight of the donor material.
10. (original) The electromagnet of claim 9, wherein the donor material comprises polyphenylene sulfide.

11. (original) The electromagnet of claim 9, wherein said glass fibers are 0.005" to 0.015" in length and 0.0001" to 0.0005" in diameter.
12. (original) The electromagnet of claim 9, wherein said sulfide or sulfate compound is Barite.
13. (original) The electromagnet of claim 9, wherein said powder metal housing has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.
14. (original) An electromagnet assembly for a brake, comprising:
a powder metal housing and core, a bobbin, a copper coil, and a friction material comprising a polymeric donor material mixed therewith, where the donor material comprises 18% to 35% of a polymer from the group consisting of polyphenylene sulfide, epoxy and phenolic, 0% to 20% aluminum oxide, 4% to 18% graphite, 9% to 45% of a sulfide or sulfate compound, and 8% to 30% glass fibers, by the total weight of the donor material.
15. (original) The electromagnet of claim 14, wherein the donor material comprises polyphenylene sulfide.
16. (original) The electromagnet of claim 14, wherein said glass fibers are 0.005" to 0.015" in length and 0.0001" to 0.001" in diameter.
17. (original) The electromagnet of claim 14, wherein said sulfide compound is Barite.
18. (original) The electromagnet of claim 15, wherein said glass fibers are 0.005" to 0.015" in length and 0.0001" to 0.0005" in diameter.
19. (original) The electromagnet of claim 18, wherein said sulfide compound is Barite.

20. (original) The electromagnet of claim 14, wherein said powder metal housing has a Young's modulus of elasticity between about 6.8 million psi and about 29.5 million psi.

21. (original) The electromagnet of claim 20, wherein said Young's modulus of elasticity of said powder metal is between about 17 million psi and about 21 million psi.

22. (original) The electromagnet of claim 21, wherein said Young's modulus of elasticity of said powder is about 19 million psi.

23. through 47. (canceled)